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(54) INFORMATION OUTPUT DEVICE

(57)Abstract:

PURPOSE: To facilitate the editing of picture data and sound data.

CONSTITUTION: A data file, an information display procedure file and a management file are stored in a memory card. Picture data and sound data are recorded in the data file. The display order of the data, the size of a time base and a function (zoom and scroll, for example) are recorded in the information display procedure file. The size of the block of data, the registration place of the block and an identification number are recorded in the management file. At the time of editing, the information display procedure file is changed.



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CLAIMS

[Claim(s)]

[Claim 1] A static-storage means to remember statically that image data and voice data do not volatilize with the display procedure, While controlling the writing to the means of communications which communicates in digital one, and said static-storage means of the data inputted through said means of communications between external instruments The control means which controls read-out of the data currently written in said static-storage means, An image data decode means to decode image data among the data read from said static-storage means, A video-signal conversion means to change into a video signal said image data decoded by said image data decode means, The information output unit characterized by having a voice data decode means to decode voice data among the data read from said static-storage means, and a sound signal conversion means to change into a sound signal said voice data decoded by said voice data decode means.

[Claim 2] Said static-storage means is an information output unit according to claim 1 characterized by being attachment and detachment at said equipment.

[Claim 3] Said image data decode means and a voice data decode means are an information output unit according to claim 1 or 2 characterized by managing said image data and voice data on the independent time-axis.

[Claim 4] The information output unit according to claim 1, 2, or 3 characterized by memorizing independently the output procedure of said image data and voice data at said static-storage means.

[Claim 5] The information output unit according to claim 4 characterized by having further an input means to input setting modification of said output procedure where the output procedure of said image data and voice data is displayed on a predetermined display.

[Claim 6] Said means of communications is an information output unit according to claim 1 to 5 characterized by said external instruments and connection being possible. [two or more]

[Claim 7] Said external instrument is an information output unit according to claim 1 to 6 characterized by including a modem.

[Claim 8] Said sound signal conversion means is an information output unit according to claim 1 to 7 characterized by having two or more channels.

[Claim 9] The information output unit according to claim 1 to 8 characterized by having further an electric power supply means to supply the power supplied from a dc-battery to each means.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention edits a video signal and a sound signal freely, and relates to the information output unit which can be outputted.

[0002]

[Description of the Prior Art] As equipment which outputs a video signal and a sound signal, there are a video camera, a television tuner, a video tape recorder (VTR), a videodisk player, a still video recorder, a CD-I player, a microcomputer, etc.

[0003] A video camera photos a photographic subject and outputs the analog video signal and sound signal corresponding to it. A television tuner receives the electric wave of television broadcasting, and restores to it and outputs this. A video tape recorder records the analog video signal and sound signal which a video camera and a television tuner output on a magnetic tape, and reproduces this. A still video recorder records a sound signal on a magnetic disk (video floppy) the analog video signal of one frame which a video camera and a television tuner output, or the 1 field, and if needed, and reproduces this.

[0004] A videodisk player reproduces and outputs the analog video signal and sound signal which are recorded on the videodisk. A CD-I player reproduces the video signal and sound signal which are recorded on CD-I (compact disk) in digital one, and outputs them as an analog video signal and a sound signal. A microcomputer changes and outputs the digital image data and voice data which were recorded on the magnetic disk etc. to an analog video signal and a sound signal.

[0005]

[Problem(s) to be Solved by the Invention] However, among these equipments, fundamentally, a video camera, a television tuner, a video tape recorder, etc. are only what outputs a video signal and a sound signal according to time series, and are difficult random access.

[0006] Moreover, although a videodisk player and a CD-I player can carry out random access of the video signal, they cannot carry out random access of the sound signal. Furthermore, since data are dynamically recorded on the disk, it is difficult for equipment to be enlarged, and for power consumption to also become large and to make it for access not only to take time amount, but operate comparatively with a dc-battery for a long time. Therefore, only the use to which a user reproduces simply the video signal beforehand recorded on the disk by the disk manufacturer and a sound signal can be presented with these equipments, but it is difficult an image, an alphabetic character, and for a user to edit sound signals, such as a sound effect, narration, and music, freely and easily further.

[0007] On the other hand, although edit processing is possible for a microcomputer, the monitor of dedication with high scan frequency is needed, and it becomes expensive while equipment enlarges it on account of the versatility and not only operability is bad, but it lacks in portability.

[0008] This invention is made in view of such a situation, are small and low cost and realizes the good equipment of operability.

[0009]

[Means for Solving the Problem] The memory card 2 as a static-storage means to remember statically that the information output unit of this invention does not volatilize image data and

voice data with the display procedure. While controlling the writing to the memory card 2 of the data inputted through the serial interface 36 as means of communications which communicates in digital one, and serial interface 36 between external instruments The main controller 31 as a control means which controls read-out of the data currently written in the memory card 2, The subcontroller 41 as an image data decode means to decode image data among the data read from the memory card 2, D/A converter 46 as a video-signal conversion means which changes into a video signal said image data decoded by the subcontroller 41, The subcontroller 51 as a voice data decode means to decode voice data among the data read from the memory card 2, It is characterized by having D/A converters 52 and 53 as a sound signal conversion means which change into a sound signal the voice data decoded by the subcontroller 51.

[0010] Said subcontrollers 41 and 51 can manage said image data and voice data on the independent time-axis. Moreover, the memory card 2 which can make attachment and detachment free can be made to memorize independently the output procedure of said image data and voice data.

[0011] Moreover, the mouse interface 35 as an input means which inputs setting modification of said output procedure into this equipment where the output procedure of said image data and voice data is displayed on a predetermined display can be established further. Furthermore, connection with two or more external instruments of serial interface 36 can be enabled. Moreover, a modem can also be included in an external instrument.

[0012] A D/A converter can be formed by [two or more] the channel.

[0013] Furthermore, this equipment can make power supply from a dc-battery.

[0014]

[Function] In the information output unit of the above-mentioned configuration, image data and voice data are memorized by the memory card 2 with the output procedure. Therefore, the cheap and small equipment which can edit image data and voice data comparatively easily is realizable by making a setting change of this output procedure.

[0015]

[Example] Drawing 1 and Drawing 2 are the perspective views showing the configuration of one example of the information output unit of this invention. The attachment-and-detachment hole 3 is formed in the left lateral of a body 1, and it is made as [attach / to a body 1 / a memory card 2 / from this attachment-and-detachment hole 3 / detach and]. RAM which built in EEPROM and the dc-battery for backup can constitute this memory card 2. The switch 4 operated when carry out high-speed playback of the data from a memory card 2 to hard flow, stop playback, make playback start, making the forward direction carry out high-speed playback or interrupting playback temporarily (pause) is formed in the transverse plane of a body 1.

[0016] Moreover, the output terminal 11 which outputs a video signal, the output terminal 12 of two channels (right-and-left stereo signals L and R) which outputs a sound signal, the terminal 13 to which a mouse is connected, and the terminal 14 to which the cable of RS232C is connected are formed in the right lateral of a body 1.

[0017] Drawing 3 expresses typically the data currently written in the memory card 2. As shown in this drawing, the data file, the management file, and the information-display procedure file are written in the memory card 2 at least. Image data and voice data are compressed into a data file, and it memorizes independently per block. Image data is compressed by for example, the JPEG method (in the case of a still picture), and the MPEG method (in the case of an animation), and voice data is compressed using Huffman coding.

[0018] The magnitude of a block of image data or voice data, the registration location (address), the identification number (ID), etc. are written in the management file, and it is made by reading the data of this management file as [access / the predetermined image data or the voice data of a data file / per block].

[0019] The sequence of a display of image data, the magnitude of a time-axis, the function on a display (for example, a zoom, scrolling), etc. are written in the information-display procedure file. The sequence of a display of voice data, the magnitude of a time-axis, the function on a display, etc. are similarly written in this information-display procedure file independently of it of image data. Thereby, it is made as [edit / including the time-axis or display procedure (sequence) /

image data and voice data / independently].

[0020] Drawing 4 shows the electric configuration inside a body 1. The body 1 is constituted by the control function section 21, the image formation function part 22, the voice formation function part 23, the card applied part 24, and the power supply section 25.

[0021] The control function section 21 has the main controller 31 which performs various kinds of processings according to the program memorized by ROM23 and which consists of a CPU etc., for example. A timing circuit 32 generates various kinds of timing signals, and is outputting them to the main controller 31, the subcontroller 41 of the image formation function part 22, and the subcontroller 51 of the voice formation function part 23. The data which the main controller 31 needs for performing various kinds of control are suitably memorized by RAM34. A mouse interface 35 supplies the control signal inputted from the mouse (not shown) connected to a terminal 13 to the main controller 31. Serial interface (external digital interface) 36 supplies the data which are connected to a terminal 14, for example, are inputted through the cable of RS232C to the main controller 31.

[0022] Serial interface 36 can be constituted as shown in drawing 5 R> 5. In this example, transmit data is outputted from Terminal TD, and the serial communication controller 81 receives received data from Terminal RD, outputs the control signal of a Request to Send from Terminal RTS, and is made as [receive / further / from Terminal CTS / the control signal of ready for sending]. These signals and control signals are sent and received through a driver 82 and a terminal 83. Thereby, the data communication by RS232C becomes possible.

[0023] On the other hand, in order to make other data communication possible, the input/output port controller 84 is formed. The input/output port controller 84 has the input terminal IN of two channels, and the output terminal OUT. The input terminal IN of one channel is grounded through NPN transistor 85 while connecting with the predetermined voltage source through resistance 87. If the signal of a low is outputted from an output terminal OUT, since this will be supplied to the base of NPN transistor 85 through resistance 86, NPN transistor 85 turns off. The data inputted through a terminal 83 in this condition are supplied to the input terminal IN of the input/output port controller 84.

[0024] On the other hand, the input/output port controller 84 changes an output terminal OUT to a high level or a low corresponding to data, when outputting data. Since NPN transistor 85 turns on when an output is set to a high level, the collector serves as a low. Conversely, if an output is set to a low, since NPN transistor 85 turns off, the collector serves as a high level. Thus, data are sent out.

[0025] NPN transistor 88 and resistance 89 and 90 are similarly connected also to the input terminal IN and output terminal OUT of a channel of another side, and it is made as [input / data / output and]. By this input/output port controller 84, a bidirectional communication link is possible, and the communication link of 1 to 1 and the communication link of one-pair ** are attained by the wye yard or association.

[0026] The subcontroller 41 which consists of a DSP (digital signal processor) is formed in the image formation function part 22 of drawing 4 . This subcontroller 41 controls image formation processing under control of the main controller 31. The elongation circuit 42 elongates the image data compressed. CRT controller 43 changes the image data inputted into bit map data (pixel data), and a frame memory (Video RAM) 44 is made to memorize it. After being inputted into the serial parallel (S->P) conversion circuit 45 and being changed into parallel data from serial data, D/A conversion of the data memorized by the frame memory 44 is carried out by D/A converter 46, and they are made as [output / from an output terminal 11].

[0027] The subcontroller 51 which consists of a DSP is formed in the voice formation function part 23. This subcontroller 51 controls voice formation processing under control of the main controller 31. The elongation circuit 54 elongates the voice data compressed. D/A converters 52 and 53 carry out D/A conversion of the voice data of a right-and-left stereo, respectively, and output it from an output terminal 12.

[0028] The card interface 61 is formed in the card applied part 24, it is equipped with the memory card 2 which can be detached and attached freely there, and data are delivered and received.

[0029] A power supply section 25 has a dc-battery 71, and supplies direct current voltage required for each part through a power circuit 72.

[0030] Next, the actuation is explained. Although the data file, the management file, and the information-display procedure file are memorized by the memory card 2 as shown in drawing 3, this data can be updated if needed (modification). This updating (modification) data is inputted into serial interface 36 from a terminal 14. The main controller 31 supplies this data to a memory card 2 through the card interface 61, and is made to write it in the predetermined address.

[0031] The display (monitor) which consists of CRT (LCD etc. is sufficient) which is not illustrated for a terminal 11 now shall be connected. In the condition of having arranged the cursor of a mouse in the location at the lower right of the screen of a display, a double click of the carbon button of a mouse, for example, right-hand side, inputs the control signal into the main controller 31 through a terminal 13 and a mouse interface 35. At this time, the main controller 31 controls the subcontroller 41, and displays a menu screen on a display. That is, the subcontroller 41 controls CRT controller 43, and a frame memory 44 is made to develop a bit map as shown in drawing 6. CRT controller 43 reads the data developed by this frame memory 44, and is made to display them on display through the serial parallel conversion circuit 45, D/A converter 46, and an output terminal 11. As shown in drawing 6, the menu bar which consists of the switch 4 of a body 1, an icon 101 which achieves the same function substantially, and an icon 102 of an alphabetic character SUM is displayed on the lower part of a screen.

[0032] When it clicks on an icon 102 with a mouse, the main controller 31 controls the subcontroller 41, and makes the management file memorized by the memory card 2 read. At this time, the subcontroller 41 samples data so that the appearance of the whole data memorized by the data file may be known. And a frame memory 44 is made to develop the data obtained as a result of the sampling as pixel data through CRT controller 43. CRT controller 43 reads this data and is made to display it on a display through the serial parallel conversion circuit 45, D/A converter 46, and a terminal 11.

[0033] Drawing 7 expresses the example of the image which does in this way and is displayed on a display. The icon 141 and the scale 142 are displayed on the right-hand side of the maximum upper case. The scale 142 means whether the image corresponding to the data of which location in the sequential (the time-axis was met) whole data is indicated by current. If an icon 141 is operated with a mouse, the display position can be made to change into right and left (for it to set on a time-axis and to be the image of before or the back more).

[0034] The representation image V of the Time-axis TV and time of day of a picture signal is displayed on the next stage of these icons 141 and scales 142. In the case of this example, each image of the butterfly of each location for time-of-day 4 seconds, 8 seconds, 12 seconds, and 16 seconds, a crest, a bosh, and two butterflies is displayed. By operating an icon 143 with a mouse, this display image V can be changed into the image of before or the back in time.

[0035] Furthermore, the image V of much of each time of day is displayed on the next stage from that in the period expressed by the time-axis currently displayed on the maximum upper case. Moreover, iteration of the sound signals C1 and C2 of two channels in the time of day corresponding to the picture signal V is carried out to the stage under it, and they are displayed on it.

[0036] Moreover, the time-axis TA of a sound signal is displayed on the stage under it. As mentioned above, this time-axis TA has been independent of TV. On the bottom of this time-axis TA, the sound signals C1 and C2 with which iteration of [on that time-axis] was carried out are displayed.

[0037] An icon 143 thru/or 145 are operated when changing into a front or the back in time the display image of a stage which corresponds, respectively.

[0038] A user performs independently edit (assignment of playback time of day, sequence, etc., modification) of a picture signal and a sound signal, looking at the above display screens. This condition of having edited is memorized by the memory card 2 if needed. And the memorized data can be read again.

[0039] Among the data read from the memory card 2, the elongation circuit 42 develops and image data is developed by the frame memory 44 as a bit map. And this pixel data is read and it

is indicated by the output from a terminal 11 at a display.

[0040] Moreover, the voice data read from the memory card 2 is outputted to the loudspeaker which is not illustrated from a terminal 12 through D/A converters 52 and 53, after the elongation circuit 54 develops.

[0041] Drawing 8 shows the application of the equipment mentioned above. In this example, the body 1 shown in equipment 111 at drawing 4 is built in. And an output indication of the image outputted from the body 1 is given at a display (CRT) 123. It connects with the telephone line 122 through a modem 121, and a body 1 delivers and receives the equipment (external instrument) and data which are not illustrated.

[0042] Drawing 9 shows the application of further others. In this example, the body 1 shown in drawing 4 is connected to the corresponding monitor 131,132,133 as 1A, 1B, and 1C, respectively. Moreover, it connects mutually through a terminal 14, and 1CH is assigned to serial communication, and each body 1A thru/or 1C assign 1CH to the trigger for a synchronization, and is operating one set as a controller. An image which is different in each monitor is displayed by this, and it can become the image of one sheet as a whole.

[0043]

[Effect of the Invention] As mentioned above, according to this invention, since it was made to make a static-storage means memorize image data and voice data with the display procedure, edit is easy and can realize cheap equipment. Moreover, it can be small and portability can realize the equipment which can operate [good] with a dc-battery.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing the configuration of one example of the information output unit of this invention.

[Drawing 2] It is the perspective view showing the configuration of the right lateral of the information output unit shown in drawing 1.

[Drawing 3] It is drawing explaining the file memorized by the memory card 2 of drawing 1.

[Drawing 4] It is the block diagram showing the internal configuration of the example shown in drawing 1 and drawing 2.

[Drawing 5] It is the circuit diagram showing the example of a configuration of the serial interface 36 of drawing 4.

[Drawing 6] It is drawing showing the example of a display by the example of drawing 4.

[Drawing 7] It is drawing showing other examples of a display by the example of drawing 4.

[Drawing 8] It is the perspective view showing the application of the information output unit of this invention.

[Drawing 9] It is the perspective view showing other applications of the information output unit of this invention.

[Description of Notations]

1 Body

2 Memory Card

11 Image Output Terminal

12 Voice Output Terminal

31 The Main Controller

35 Mouse Interface

36 Serial Interface

41 SubController

42 Elongation Circuit

43 CRT Controller

44 Frame Memory

51 SubController

54 Elongation Circuit

61 Card Interface

[Translation done.]

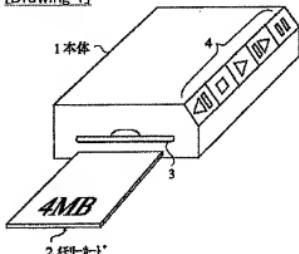
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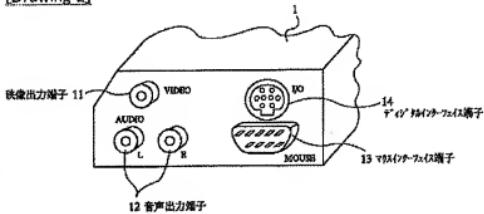
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DRAWINGS

[Drawing 1]



[Drawing 2]



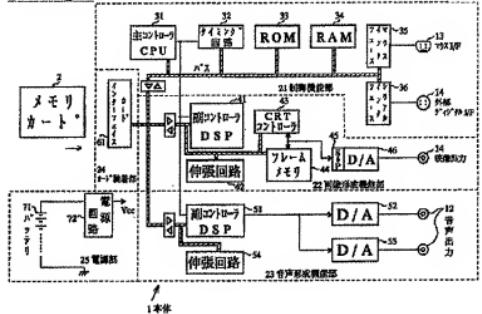
[Drawing 3]

管理ファイル	
フロックの大きさ	
フロックの登録場所	
識別番号	
⋮	

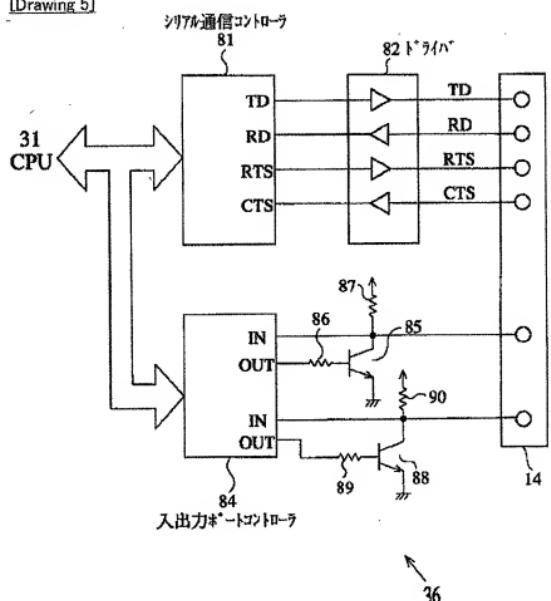
情報表示手順ファイル	
表示の順番	
時間軸の大きさ	
表示上のファンクション	
⋮	

データファイル	
フロック1	
フロック2	
フロック3	
⋮	

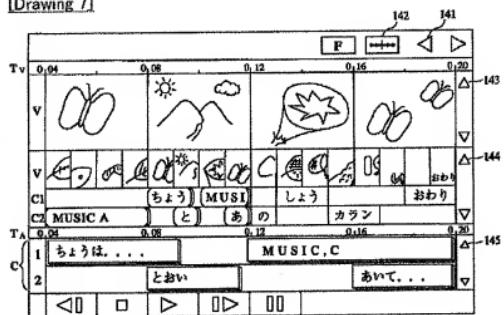
[Drawing 4]



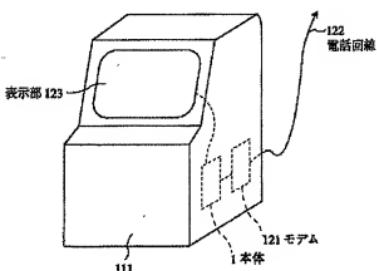
[Drawing 5]



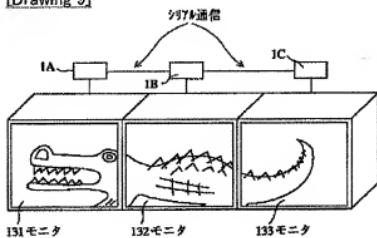
[Drawing 7]



[Drawing 8]



[Drawing 9]



[Translation done.]